



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,162	05/07/2001	Knut Irgum	52295-64071-	1048

466 7590 02/18/2003

YOUNG & THOMPSON
745 SOUTH 23RD STREET 2ND FLOOR
ARLINGTON, VA 22202

EXAMINER

THERKORN, ERNEST G

ART UNIT	PAPER NUMBER
----------	--------------

1723

12

DATE MAILED: 02/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/831,162

Applicant(s)

IRGUM

Examiner

THERKORP

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on JAN 29, 2003
- 2a) ☐ This action is FINAL.
- 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-27 is/are pending in the application.
- 4a) Of the above, claim(s) 24-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 1723

Claims 15-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 15's "consisting of an" and "wzitterionic" are considered to render the claims indefinite. Claim 17's "preferably graft polymerizing" is considered to render the claims indefinite. Claim 20's "such as" renders the claim indefinite. Claim 21's "such as" renders the claim indefinite.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15-16 are rejected under 35 U.S.C. 102(B) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wenzhi (U.S. Patent No. 5,589,069). The claims are considered to read on Wenzhi (U.S. Patent No. 5,589,069). However, if a difference exists

Art Unit: 1723

between the claims and Wenzhi (U.S. Patent No. 5,589,069), it would reside in optimizing the elements of Wenzhi (U.S. Patent No. 5,589,069). It would have been obvious to optimize the elements of Wenzhi (U.S. Patent No. 5,589,069) to enhance separation.

Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wenzhi (U.S. Patent No. 5,589,069) in view of either Yu (Journal of Chromatographic Science, Vol. 24, May 1986, pages 177-182) or Yu (Journal of Chromatographic Science, Vol.27, April 1989, pages 176-185) and Kurganov (Journal of Chromatography, 548 (1991) pages 207-214). At best, the claims differ from Wenzhi (U.S. Patent No. 5,589,069) in the clarity of reciting covalent bonding. Wenzhi (U.S. Patent No. 5,589,069) is considered to disclose covalent bonding on column 6, lines 31-32. In any event, Yu (Journal of Chromatographic Science, Vol. 24, May 1986, pages 177-182) (page 177, column 2, lines 25-26 and 35-40) discloses that use of a permanently bonded immobilized ligand allows a fixed surface concentration under varying conditions and is a benefit to both analytical and preparative separations. Yu (Journal of Chromatographic Science, Vol.27, April 1989, pages 176-185) (page 177, column 1, the second full paragraph) discloses that zwitterionic ligands are generally bonded to their supports. Kurganov (Journal of Chromatography, 548 (1991) pages 207-214) (in the three paragraphs under preparation of ion exchangers bridging pages 208-209) discloses the procedure to covalently bond groups to polystyrene to form a zwitterionic exchanger. It would have been obvious that Wenzhi (U.S. Patent No. 5,589,069)'s support is covalently bonded because Wenzhi (U.S. Patent No. 5,589,069) is considered to disclose covalent bonding on column 6, lines 31-32

Art Unit: 1723

and either because Yu (Journal of Chromatographic Science, Vol. 24, May 1986, pages 177-182) (page 177, column 2, lines 25-26 and 35-40) discloses that use of a permanently bonded immobilized ligand allows a fixed surface concentration under varying conditions and is a benefit to both analytical and preparative separations or because Yu (Journal of Chromatographic Science, Vol.27, April 1989, pages 176-185) (page 177, column 1, the second full paragraph) discloses that zwitterionic ligands are generally bonded to their supports and because Kurganov (Journal of Chromatography, 548 (1991) pages 207-214) (in the three paragraphs under preparation of ion exchangers bridging pages 208-209) discloses the procedure to covalently bond groups to polystyrene to form a zwitterionic exchanger.

Claims 17 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Wenzhi (U.S. Patent No. 5,589,069) alone or Wenzhi (U.S. Patent No. 5,589,069) in view of either Yu (Journal of Chromatographic Science, Vol. 24, May 1986, pages 177-182) or Yu (Journal of Chromatographic Science, Vol.27, April 1989, pages 176-185) and Kurganov (Journal of Chromatography, 548 (1991) pages 207-214) as applied to claims 15-16 above, and further in view of Viklund (Biotechnol. 1997, 13, 597-600). The claims differ from either Wenzhi (U.S. Patent No. 5,589,069) alone or Wenzhi (U.S. Patent No. 5,589,069) in view of either Yu (Journal of Chromatographic Science, Vol. 24, May 1986, pages 177-182) or Yu (Journal of Chromatographic Science, Vol.27, April 1989, pages 176-185) and Kurganov (Journal of Chromatography, 548 (1991) pages 207-214) in reciting polymerizing the zwitterionic groups to the carrier. Viklund (Biotechnol. 1997, 13, 597-600) (page 597) discloses attaching reactive

Art Unit: 1723

polymer chains dramatically increases surface group density and discloses polymerizing a zwitterionic compound. It would have been obvious to polymerize zwitterionic groups to the carrier because Viklund (Biotechnol. 1997, 13, 597-600) (page 597) discloses attaching reactive polymer chains dramatically increases surface group density and discloses polymerizing a zwitterionic compound.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Wenzhi (U.S. Patent No. 5,589,069) alone or Wenzhi (U.S. Patent No. 5,589,069) in view of either Yu (Journal of Chromatographic Science, Vol. 24, May 1986, pages 177-182) or Yu (Journal of Chromatographic Science, Vol.27, April 1989, pages 176-185), Kurganov (Journal of Chromatography, 548 (1991) pages 207-214), and Viklund (Biotechnol. 1997, 13, 597-600) as applied to claim 17 above, and further in view of Hatch (Industrial and Engineering Chemistry, Vol. 49. No. 11 November 1957, pages 1812-1819 and Kurganov (Journal of Chromatography, 548 (1991) pages 207-214). The claim differs from either Wenzhi (U.S. Patent No. 5,589,069) alone or Wenzhi (U.S. Patent No. 5,589,069) in view of either Yu (Journal of Chromatographic Science, Vol. 24, May 1986, pages 177-182) or Yu (Journal of Chromatographic Science, Vol.27, April 1989, pages 176-185), Kurganov (Journal of Chromatography, 548 (1991) pages 207-214), and Viklund (Biotechnol. 1997, 13, 597-600) in reciting crosslinking. Hatch (Industrial and Engineering Chemistry, Vol. 49. No. 11 November 1957, pages 1812-1819 (page 1813, column 2, the second full paragraph and page 1816, the second and third columns) discloses that crosslinking zwitterionic chains affects their adsorption characteristics. Kurganov (Journal of

Art Unit: 1723

Chromatography, 548 (1991) pages 207-214) on page 207 discloses crosslinking agents are a desirable way to apply a polymeric layer. It would have been obvious to crosslink in either Wenzhi (U.S. Patent No. 5,589,069) alone or Wenzhi (U.S. Patent No. 5,589,069) in view of either Yu (Journal of Chromatographic Science, Vol. 24, May 1986, pages 177-182) or Yu (Journal of Chromatographic Science, Vol.27, April 1989, pages 176-185), Kurganov (Journal of Chromatography, 548 (1991) pages 207-214), and Viklund (Biotechnol. 1997, 13, 597-600) because Hatch (Industrial and Engineering Chemistry, Vol. 49. No. 11 November 1957, pages 1812-1819 (page 1813, column 2, the second full paragraph and page 1816, the second and third columns) discloses that crosslinking zwitterionic chains affects their adsorption characteristics and because Kurganov (Journal of Chromatography, 548 (1991) pages 207-214) on page 207 discloses crosslinking agents are a desirable way to apply a polymeric layer.

Claims 19-21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Wenzhi (U.S. Patent No. 5,589,069) alone or Wenzhi (U.S. Patent No. 5,589,069) in view of either Yu (Journal of Chromatographic Science, Vol. 24, May 1986, pages 177-182) or Yu (Journal of Chromatographic Science, Vol.27, April 1989, pages 176-185) and Kurganov (Journal of Chromatography, 548 (1991) pages 207-214) as applied to claims 15-16 above, and further in view of Kurganov (Journal of Chromatography, 548 (1991) pages 207-214) and Yang (U.S. Patent No. 6,039,876). At best, the claims differ from either Wenzhi (U.S. Patent No. 5,589,069) alone or Wenzhi (U.S. Patent No. 5,589,069) in view of either Yu (Journal of Chromatographic Science, Vol. 24, May 1986, pages 177-182) or Yu (Journal of Chromatographic Science,

Art Unit: 1723

Vol.27, April 1989, pages 176-185) and Kurganov (Journal of Chromatography, 548 (1991) pages 207-214) in reciting surface activation. Kurganov (Journal of Chromatography, 548 (1991) pages 207-214) (in the three paragraphs under preparation of ion exchangers bridging pages 208-209) discloses that chloromethylation is the art recognized way to attach zwitterionic groups to polystyrene. Yang (U.S. Patent No. 6,039,876) (column 3, lines 57-65) discloses a chlorinated methyl group is the most preferred reactive group to attach functional groups to polystyrene. It would have been obvious to surface activate with a chloromethyl group in either Wenzhi (U.S. Patent No. 5,589,069) alone or Wenzhi (U.S. Patent No. 5,589,069) in view of either Yu (Journal of Chromatographic Science, Vol. 24, May 1986, pages 177-182) or Yu (Journal of Chromatographic Science, Vol.27, April 1989, pages 176-185) and Kurganov (Journal of Chromatography, 548 (1991) pages 207-214) because Kurganov (Journal of Chromatography, 548 (1991) pages 207-214) (in the three paragraphs under preparation of ion exchangers bridging pages 208-209) discloses that chloromethylation is the art recognized way to attach zwitterionic groups to polystyrene and because Yang (U.S. Patent No. 6,039,876) (column 3, lines 57-65) discloses a chlorinated methyl group is the most preferred reactive group to attach functional groups to polystyrene.

Claims 15-17 and 22 are rejected under 35 U.S.C. 102(B) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Viklund (Biotechnol. 1997, 13, 597-600). The claims are considered to read on Viklund (Biotechnol. 1997, 13, 597-600). However, if a difference exists between the claims and Viklund (Biotechnol. 1997, 13, 597-600), it would reside

Art Unit: 1723

in optimizing the elements of Viklund (Biotechnol. 1997, 13, 597-600). It would have been obvious to optimize the elements of Viklund (Biotechnol. 1997, 13, 597-600) to enhance separation.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Viklund (Biotechnol. 1997, 13, 597-600) in view of Hatch (Industrial and Engineering Chemistry, Vol. 49. No. 11 November 1957, pages 1812-1819 and Kurganov (Journal of Chromatography, 548 (1991) pages 207-214). At best, the claim differs from Viklund (Biotechnol. 1997, 13, 597-600) in reciting crosslinking. Hatch (Industrial and Engineering Chemistry, Vol. 49. No. 11 November 1957, pages 1812-1819 (page 1813, column 2, the second full paragraph and page 1816, the second and third columns) discloses that crosslinking zwitterionic chains affects their adsorption characteristics. Kurganov (Journal of Chromatography, 548 (1991) pages 207-214) on page 207 discloses crosslinking agents are a desirable way to apply a polymeric layer. It would have been obvious to crosslink in Viklund (Biotechnol. 1997, 13, 597-600) because Hatch (Industrial and Engineering Chemistry, Vol. 49. No. 11 November 1957, pages 1812-1819 (page 1813, column 2, the second full paragraph and page 1816, the second and third columns) discloses that crosslinking zwitterionic chains affects their adsorption characteristics and because Kurganov (Journal of Chromatography, 548 (1991) pages 207-214) on page 207 discloses crosslinking agents are a desirable way to apply a polymeric layer.

Claims 15-16 are rejected under 35 U.S.C. 102(B) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Métz (U.S. Patent No. 4,577,013). The claims are

Art Unit: 1723

considered to read on Metz (U.S. Patent No. 4,577,013). However, if a difference exists between the claims and Metz (U.S. Patent No. 4,577,013), it would reside in optimizing the elements of Metz (U.S. Patent No. 4,577,013). It would have been obvious to optimize the elements of Metz (U.S. Patent No. 4,577,013) to enhance separation.

Claims 15-16 are rejected under 35 U.S.C. 102(A and/or B) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Grote (Reactive & Functional Polymers, 35 (1997) pages 179-196). The claims are considered to read on Grote (Reactive & Functional Polymers, 35 (1997) pages 179-196). However, if a difference exists between the claims and Grote (Reactive & Functional Polymers, 35 (1997) pages 179-196), it would reside in optimizing the elements of Grote (Reactive & Functional Polymers, 35 (1997) pages 179-196). It would have been obvious to optimize the elements of Grote (Reactive & Functional Polymers, 35 (1997) pages 179-196) to enhance separation.

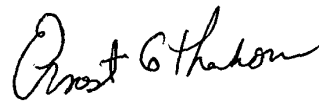
It would be appreciated if applicants provided a replacement copy of Hatch (Industrial and Engineering Chemistry, Vol. 49. No. 11 November 1957, pages 1812-1819) because the submitted copy of Hatch (Industrial and Engineering Chemistry, Vol. 49. No. 11 November 1957, pages 1812-1819) has illegible sections.

The references submitted January 29, 2003 and not cited were not cited because they do not appear on a PTO-1449. It would be appreciated if applicants submitted a PTO-1449 for the remaining references.

Art Unit: 1723

The remarks urge that the restriction is improper because the examiner has not shown the “special technical feature” of the claimed invention. However, the “special technical feature” of the claimed invention is considered to be more fully shown by the art based rejections of the instant office action. As such, the restriction has been reconsidered, deemed proper, and made final for the reasons of record.

Any inquiry concerning this communication should be directed to E. Therkorn at telephone number (703) 308-0362.



Ernest G. Therkorn
Primary Examiner
Art Unit 1723

EGT/12
February 10, 2003